64 Inputs and Encoders Configuration

Version 4.0.0

User Manual

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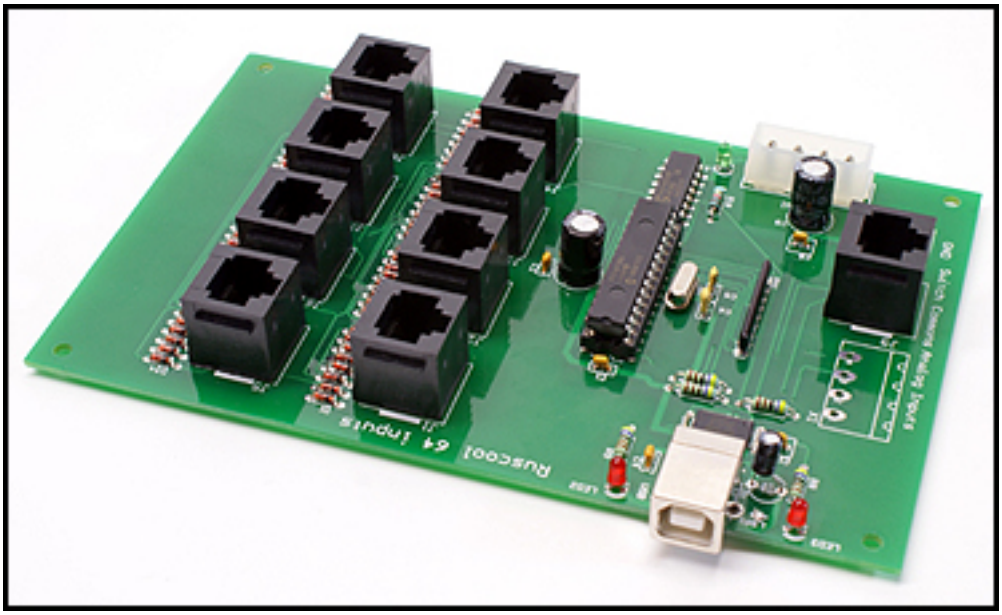

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64 Inputs and Encoders Configuration

Running the **64 Inputs and Encoders Config** program allows the user to set up each input as desired.
The board has its inputs arranged in eight groups of eight to enable the use of readily available CAT5 cables.

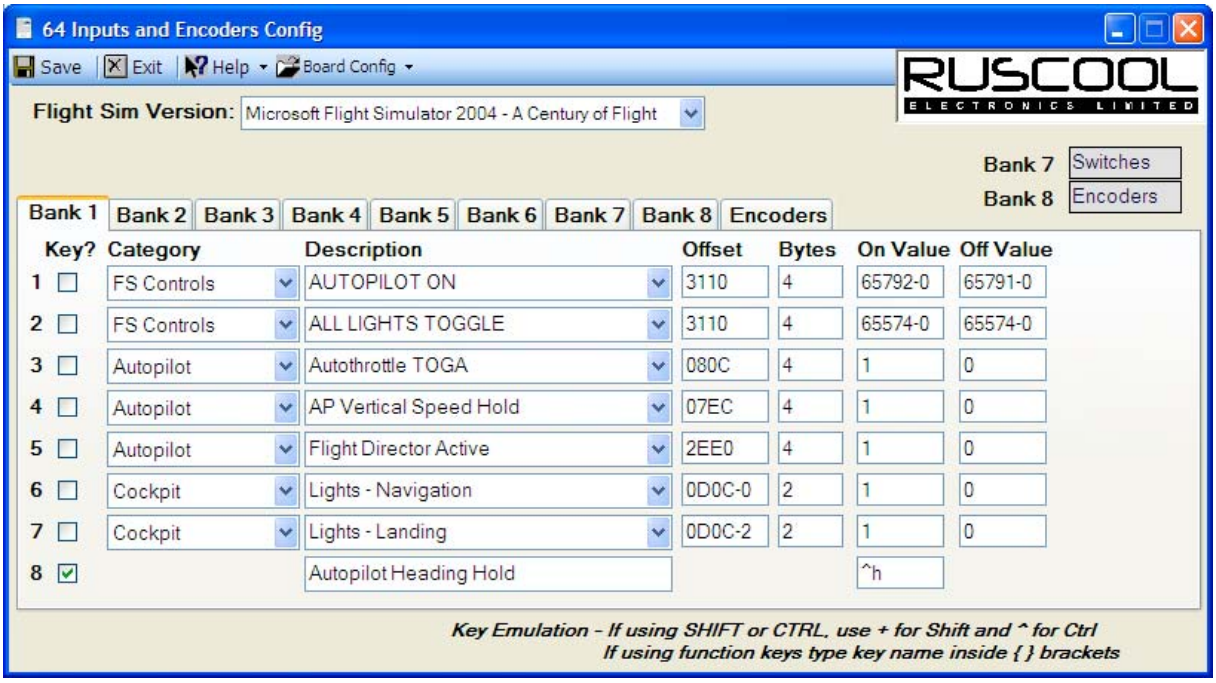
There are also terminals for the connection of two rotary encoders directly to the board.

If you are running more than one 64 Inputs board, drop down Board Config from the menu and select the number of boards that you are using. You can then configure the different boards through this program by selecting the relevant 'Board Number' .

Banks 7 and 8 can also be used as encoders instead of inputs if required. If you need 4 encoders, select Bank 8 as encoders by clicking on the Bank 8 button at the top of the screen. If you need 8 encoders, select Bank 7 as encoders by clicking on the Bank 7 button at the top of the screen which will automatically change Bank 8 to encoders also.

Clicking on the appropriate tab will allow you to configure each of the eight banks of inputs and/or encoders.

The 64 Inputs board will handle other items that the FSUIPC offset list doesn't handle. You can use any of the FS Controls that can be configured within the FSUIPC module in Flight Sim and access them directly through this program without assigning them inside the flight sim program. These are 65xxx numbers and a list is included within this program. Alternatively, you can use the 'Create Mouse Macro' or 'Key Presses' options in FSUIPC, and use a mouse click on the screen to be controlled by a keypress combination (ie Ctrl-y) to operate this function. Using our 64 Inputs Combo software, you can now have one of your physical buttons (connected to the board) simulate this keypress combination when you press it (or any other keypress combination assigned inside the flight sim program).


64 Inputs and Encoders Config
Save
Exit
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Board Config
RUSCOOL
ELECTRONICS LIMITED
Flight Sim Version: Microsoft Flight Simulator 2004 - A Century of Flight
Bank 7 Switches
Bank 8 Encoders
Bank 1 Bank 2 Bank 3 Bank 4 Bank 5 Bank 6 Bank 7 Bank 8 Encoders
Key? Category Description Offset Bytes On Value Off Value
1 FS Controls AUTOPILOT ON 3110 4 65792-0 65791-0
2 FS Controls ALL LIGHTS TOGGLE 3110 4 65574-0 65574-0
3 Autopilot Autothrottle TOGA 080C 4 1 0
4 Autopilot AP Vertical Speed Hold 07EC 4 1 0
5 Autopilot Flight Director Active 2EE0 4 1 0
6 Cockpit Lights - Navigation 0D0C-0 2 1 0
7 Cockpit Lights - Landing 0D0C-2 2 1 0
8 Autopilot Heading Hold ^h
Key Emulation - If using SHIFT or CTRL, use + for Shift and ^ for Ctrl
If using function keys type key name inside { } brackets

Select the version of Flight Simulator that you are using, or manually type the full program name as this is used for key emulation purposes.

Key Emulation

- Tick the "Key?" checkbox if the switch is to emulate a key press within Flight Sim.

- Manually type the "Description" to identify the switch for yourself.

- Enter the "On Value". If the CTRL key is to precede the keypress, press the ^ key and then press the required key(s) or + if the SHIFT key is to precede the keypress (eg CTRL-Y would be ^Y). If using function keys type the function key name inside curly brackets (eg Home key would be {HOME}).

FSUIPC Selection

- Click on the “Category” drop-down and choose the item required.
  If you don’t know which category the item is related to, you can choose (All).
  If the offset isn't listed, you can select " ...Custom..." and enter your own details.
  To select an FS control, select "FS Controls" from the drop-down and another screen will popup allowing you to select the action from a list. If you are using a control that ends with "SET" you will need to enter a parameter, otherwise it will default to zero. If you only have one required action, select it from the "ON" section only and leave the "OFF" section blank.

- If you are using a standard offset, click on the “Description” drop-down and choose the item required. The program will show you the “Offset” and the “Bytes” as used by FSUIPC.
  You will also see above that some of the FSUIPC offsets (ie. the different Lights) have a suffix after the offset value, and this is automatically catered for in this system.

- Enter the "On Value" and "Off Value" if these fields are not automatically populated from the Description or other screen.

In most situations, it is not necessary for the user to fully understand how FSUIPC works with MS Flight Simulator, but sometimes it is useful to know what sort of values are required in the On and Off.

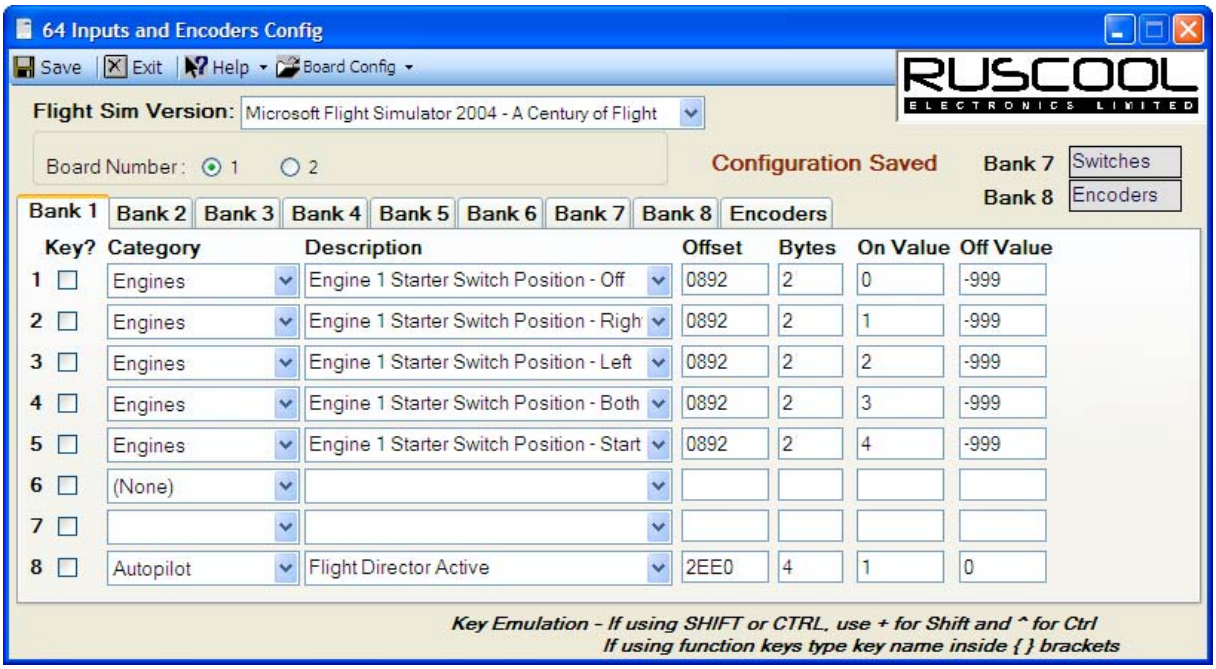
When selecting the description, the appropriate “1” and “0” or relevant values will pop up in the On Value and Off Value boxes. If these boxes are not filled in automatically, it is essential to type in the appropriate information by hand.

You can reverse the function of the On and Off conditions by changing the “1” to a “0” and the “0” to a “1”. (The same applies to any other value pairing)

A further example is when an MS Flight Simulator function generates a different number depending on the position of a switch. An example would be using two switches to perhaps drive the engine starter switch, one for the GEN position and another for the START position.

It is essential that the “On Value” and “Off Value” boxes have values in them as appropriate to the switching function, or else that particular line will not be saved in the configuration file. If using FS Controls, these values should not be manaully changed - select "FS Controls" again from the category drop-down to alter your selection.

Some cockpit switches may be multi-position rotary switches (such as Auto-Brake selector, and Mag / Starter switch). These types of rotary switches can be connected to Bank 1 or Bank 2 only, and they need an "Off Value" of -999. This means that now the Flight Simulator program will only be sent the "On Value" that you type into the box. The example below shows the Engine Starter Switch positions that the rotary switch would use. You can manually type the extra details after the description so that it is easier to keep track of what each switch does.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Board Config
RUSCOOL
ELECTRONICS LIMITED
Flight Sim Version: Microsoft Flight Simulator 2004 - A Century of Flight
Board Number: 1 2
Configuration Saved
Bank 7 Switches
Bank 8 Encoders
Bank 1 Bank 2 Bank 3 Bank 4 Bank 5 Bank 6 Bank 7 Bank 8 Encoders
Key? Category Description Offset Bytes On Value Off Value
1 Engines Engine 1 Starter Switch Position - Off 0892 2 0 -999
2 Engines Engine 1 Starter Switch Position - Righ 0892 2 1 -999
3 Engines Engine 1 Starter Switch Position - Left 0892 2 2 -999
4 Engines Engine 1 Starter Switch Position - Both 0892 2 3 -999
5 Engines Engine 1 Starter Switch Position - Start 0892 2 4 -999
6 (None)
7
8 Autopilot Flight Director Active 2EE0 4 1 0
Key Emulation - If using SHIFT or CTRL, use + for Shift and ^ for Ctrl
If using function keys type key name inside { } brackets

It is not necessary to use every input in each bank, so they can be just ignored if they are blank. However if they have been previously configured and you now want them to be unused, make sure "Key?" is deselected and select (None) from the "Category" drop-down.

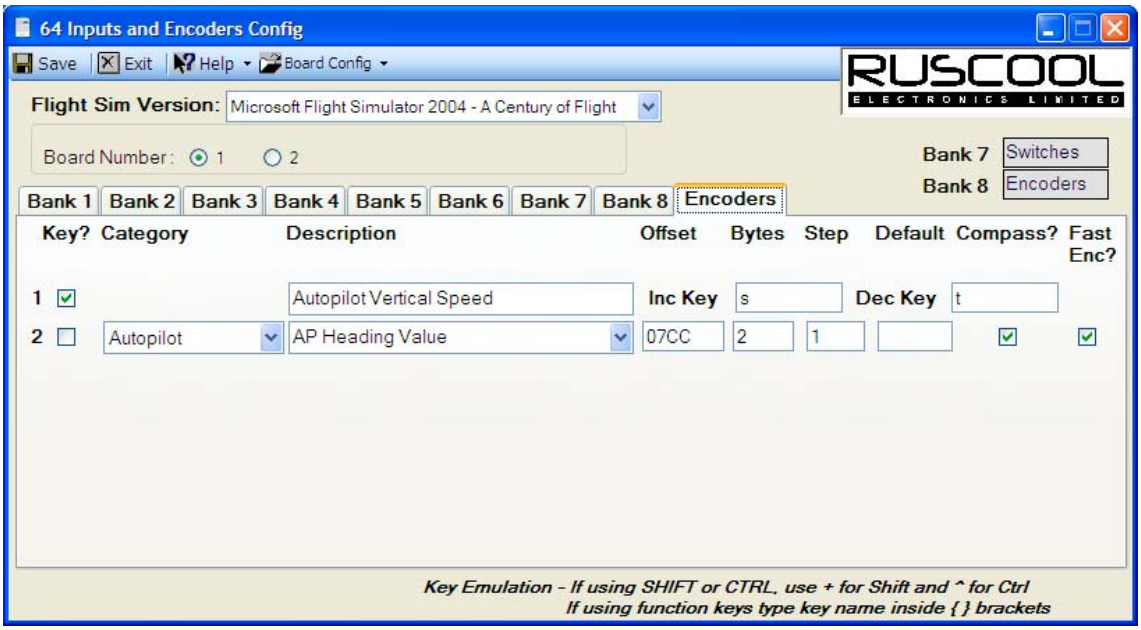
Encoder Setup

Encoders can be setup in the same way as the switch configuration.

If you want the encoder to increase in speed when turning quickly, tick the 'Fast Enc?' box, leaving this box blank will turn the encoder one by one regardless of the speed you turn it.

If using Key Emulation, you will need to enter the key(s) used for both incrementing and decrementing.

Note: If the CTRL key is to preceed the keypress, press the ^ key and then press the required key(s) or + if the SHIFT key is to preceed the keypress (eg CTRL-Y would be ^Y). If using function keys type the function key name inside curly brackets (eg Home key would be {HOME}).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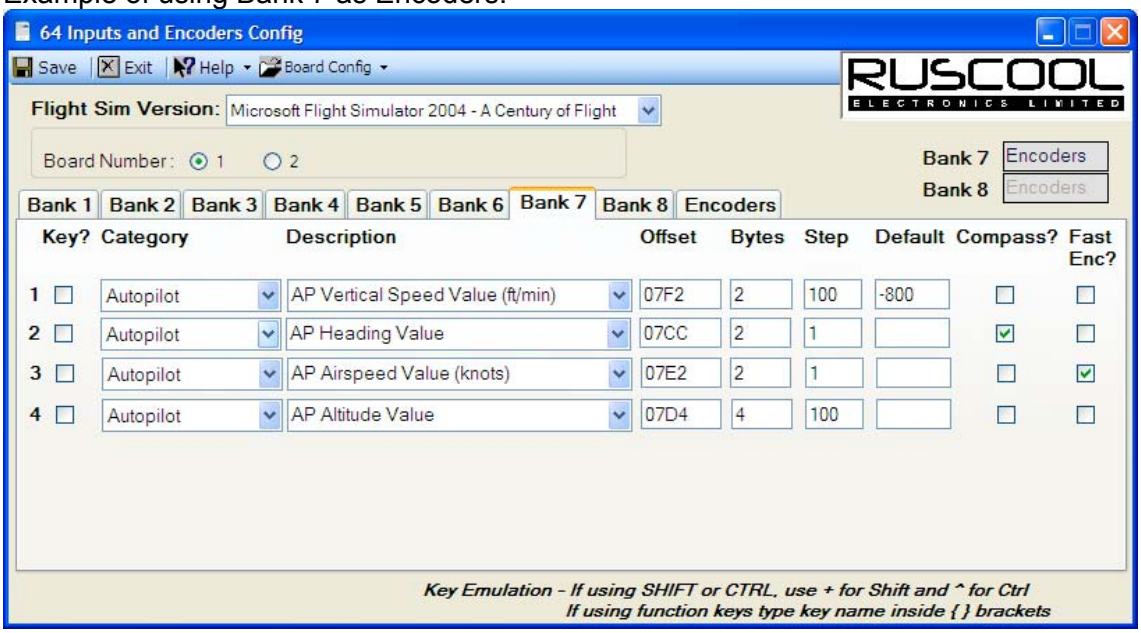
Flight Sim Version: Microsoft Flight Simulator 2004 - A Century of Flight
Board Number: 1 2
Bank 7 Switches
Bank 8 Encoders
Bank 1 Bank 2 Bank 3 Bank 4 Bank 5 Bank 6 Bank 7 Bank 8 Encoders
Key? Category Description Offset Bytes Step Default Compass? Fast Enc?
1 Autopilot Vertical Speed Inc Key s Dec Key t
2 Autopilot AP Heading Value 07CC 2 1
Key Emulation - If using SHIFT or CTRL, use + for Shift and ^ for Ctrl
If using function keys type key name inside { } brackets

Example of using Bank 7 as Encoders: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Flight Sim Version: Microsoft Flight Simulator 2004 - A Century of Flight
Board Number: 1 2
Bank 7 Encoders
Bank 8 Encoders
Bank 1 Bank 2 Bank 3 Bank 4 Bank 5 Bank 6 Bank 7 Bank 8 Encoders
Key? Category Description Offset Bytes Step Default Compass? Fast Enc?
1 Autopilot AP Vertical Speed Value (ft/min) 07F2 2 100 -800
2 Autopilot AP Heading Value 07CC 2 1
3 Autopilot AP Airspeed Value (knots) 07E2 2 1
4 Autopilot AP Altitude Value 07D4 4 100
Key Emulation - If using SHIFT or CTRL, use + for Shift and ^ for Ctrl
If using function keys type key name inside { } brackets

Save Configuration

The system **does not** automatically save your changes, so it is necessary to press the “Save” button in the top left-hand corner if you wish to save your changes before you exit the program.

Pressing the "Exit" button will shut down the **64 Inputs and Encoders Config** program without saving any changes.

Test Inputs

There is a **64 Inputs Test** program that can be used to validate your switches/pushbuttons before running the configuration program. This can be useful if the switches are already wired and you need to figure out how you wish to configure them.

This program can be found either in the Program Menu under 'Ruscool Applications' or in the '64 Inputs and Encoders' directory in Windows Explorer.

While running this program you can operate switches and/or pushbuttons one at a time and see which bank and switch number they are wired to. It is suggested that you operate the switch/pushbutton a couple of times to ensure that the correct reading is shown. As some switches can already be 'ON' when this program is started, you can get misleading results the first time you try a switch on each bank.